

**In the claims:**

1-102. (Canceled).

103. (New) A method of isolating anti hyperglycemic agents from *Portulaca oleracea* L., the method comprising

- (a) extracting polar components from *Portulaca oleracea* L.; and
- (b) purifying said polar components thereby isolating the anti hyperglycemic agents from *Portulaca oleracea* L.

104. (New) The method of claim 103, wherein said extracting is effected by employing a solvent gradient of increasing polarity

105. (New) The method of claim 103, wherein said extracting is effected by ethanol-water extraction.

106. (New) The method of claim 104, wherein said solvents of increasing polarity are hexane, ethyl acetate, dichloromethane, methanol and water.

107. (New) The method of claim 104, wherein said solvents of increasing polarity are hexane:dichloromethane:ethylacetate (1:1:1) and methanol:ethanol:water (1:1:1).

108. (New) The method of claim 103, wherein said purifying said polar components from said extract is effected by thin layer chromatography.

109. (New) A method of isolating anti hyperglycemic agents from *Portulaca oleracea* L., the method comprising extracting non-polar components from *Portulaca oleracea* L., thereby isolating the anti hyperglycemic agents from *Portulaca oleracea* L.

110. (New) The method of claim 109, wherein said extracting is effected using non-polar solvents.

111. (New) The method of claim 109, wherein said extracting is effected by ethanol-water extraction.

112. (New) The method of claim 110, wherein said non-polar solvents are selected from the group consisting of hexane, dichloromethane and ethyl acetate.

113. (New) The method of claim 109, further comprising purifying said non-polar components from said extract.

114. (New) The method of claim 113, wherein said purifying said non-polar components from said extract is effected by thin layer chromatography.

115. (New) A composition of matter comprising an ethanol-water extract of *Portulaca oleracea* L.

116. (New) The composition of matter of claim 115, wherein a ratio of said ethanol-water is 80 % -20 %.

117. (New) The composition of matter of claim 115, wherein said ethanol-water extract of *Portulaca oleracea* L. is capable of lowering glucose levels in the blood.

118. (New) The composition-of-matter of claim 117, wherein said ethanol-water extract of *Portulaca oleracea* L. is capable of increasing glucose transport into cells and/or decreasing glucose adsorption through the intestines.

119. (New) A composition of matter comprising a polar fraction extract of *Portulaca oleracea* L.

120. (New) The composition of matter wherein said polar fraction extract does not comprise hydrocolloids.

121. (New) The composition-of-matter of claim 119, wherein said polar extract is capable of lowering glucose levels in the blood.

122. (New) The composition-of-matter of claim 119, wherein said polar extract is capable of increasing glucose transport into cells.

123. (New) The composition-of-matter of claim 119, wherein said composition has R<sub>f</sub> values in a range of 0.0-0.45 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

124. (New) The composition-of-matter of claim 119, wherein said composition has R<sub>f</sub> values in a range of 0.0-0.32 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

125. (New) The composition-of-matter of claim 119, wherein said composition has R<sub>f</sub> values in a range of 0.17-0.41 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

126. (New) The composition-of matter of claim 119, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using methanol and has a R<sub>f</sub> value selected from the group consisting of 0.0, 0.31, 0.34, 0.36, 0.39 and 0.45 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

127. (New) The composition-of matter of claim 119, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using water and has a R<sub>f</sub> value of 0.0 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

128. (New) The composition-of matter of claim 119, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted with methanol and has a R<sub>f</sub> value

selected from the group consisting of 0.0, 0.15, 0.30 and 0.32 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

129. (New) The composition-of matter of claim 119, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted with methanol:ethanol:water in proportions of 1:1:1 and has a R<sub>f</sub> value selected from the group consisting of 0.17, 0.27, 0.30, 0.34, 0.39 and 0.41 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

130. (New) A composition-of-matter comprising a non-polar fraction extract of *Portulaca oleracea* L.

131. (New) The composition-of-matter of claim 130, wherein said non-polar extract is capable of decreasing glucose levels in the blood.

132. (New) The composition-of-matter of claim 130, wherein said non-polar extract is capable of decreasing glucose adsorption through the intestines.

133. (New) The composition-of-matter of claim 130, wherein said composition has R<sub>f</sub> values in a range of 0.11-0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

134. (New) The composition-of-matter of claim 130, wherein said composition has R<sub>f</sub> values in a range of 0.11-0.88 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

135. (New) The composition-of-matter of claim 130, wherein said composition has R<sub>f</sub> values in a range of 0.17-0.91 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

136. (New) The composition-of matter of claim 130, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using hexane and has a Rf value selected from the group consisting of 0.36, 0.45, 0.52, 0.71 and 0.88 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

137. (New) The composition-of matter of claim 130, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using ethyl acetate and has a Rf value selected from the group consisting of 0.11, 0.18, 0.31, 0.36, 0.45, 0.52 and 0.71 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

138. (New) The composition-of matter of claim 130, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with hexane and has a Rf value selected from the group consisting of 0.3, 0.32, 0.41, 0.47 and 0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

139. (New) The composition-of matter of claim 130, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with ethyl acetate and has a Rf value selected from the group consisting of 0.15, 0.36, 0.47, 0.73 and 0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

140. (New) The composition-of matter of claim 130, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with hexane:DCM:ethyl-acetate in proportions of 1:1:1 and has a Rf value selected from the group consisting of 0.17, 0.30, 0.36, 0.41, 0.68 and 0.91 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

141. (New) A pharmaceutical composition for reducing blood glucose levels comprising a therapeutic effective amount of a composition including a polar fraction extract of *Portulaca oleracea* L. and a pharmaceutical acceptable carrier or diluent.

142. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract has R<sub>f</sub> values in a range of 0.0-0.45 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

143. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract has R<sub>f</sub> values in a range of 0.0-0.32 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

144. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract has R<sub>f</sub> values in a range of 0.17-0.41 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

145. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using methanol and has a R<sub>f</sub> value selected from the group consisting of 0.0, 0.31, 0.34, 0.36, 0.39 and 0.45 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

146. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using water and has a R<sub>f</sub> value of 0.0 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

147. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted with methanol and has a Rf value selected from the group consisting of 0.0, 0.15, 0.30 and 0.32 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

148. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted with methanol:ethanol:water in proportions of 1:1:1 and has a Rf value selected from the group consisting of 0.17, 0.27, 0.30, 0.34, 0.39 and 0.41 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

149. (New) The pharmaceutical composition of claim 141, wherein said polar fraction extract does not comprise hydrocolloids.

150. (New) A pharmaceutical composition for decreasing blood glucose levels comprising a therapeutic effective amount of a composition including a non-polar fraction extract of *Portulaca oleracea* L and a pharmaceutical acceptable carrier or diluent.

151. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract has Rf values in a range of 0.11-0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

152. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract has Rf values in a range of 0.11-0.88 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

153. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract has Rf values in a range of 0.17-0.91 when subjected to

thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

154. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using hexane and has a Rf value selected from the group consisting of 0.36, 0.45, 0.52, 0.71 and 0.88 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

155. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using ethyl acetate and has a Rf value selected from the group consisting of 0.11, 0.18, 0.31, 0.36, 0.45, 0.52 and 0.71 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

156. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with hexane and has a Rf value selected from the group consisting of 0.3, 0.32, 0.41, 0.47 and 0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

157. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with ethyl acetate and has a Rf value selected from the group consisting of 0.15, 0.36, 0.47, 0.73 and 0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

158. (New) The pharmaceutical composition of claim 150, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with hexane:DCM:ethyl-acetate in proportions of 1:1:1 and has a Rf value selected from

the group consisting of 0.17, 0.30, 0.36, 0.41, 0.68 and 0.91 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

159. (New) A method of treating a hyperglycemia-related disease in a subject, the method comprising administering to a subject in need thereof a therapeutic effective amount of a composition including an ethanol-water extract of *Portulaca oleracea* L., thereby treating the hyperglycemia-related disease in the subject.

160. (New) A method of treating a hyperglycemia-related disease in a subject, the method comprising administering to a subject in need thereof a therapeutic effective amount of a composition including a polar fraction extract of *Portulaca oleracea* L., thereby treating the hyperglycemia-related disease in the subject.

161. (New) The method of claim 160, wherein said polar fraction does not comprise hydrocolloids.

162. (New) The method of claim 160, wherein the hyperglycemia-related disease is selected from the group consisting of diabetes, Cushing's disease, Cushing's syndrome, eating disorders, impaired glucose tolerance, glomerular microangiopathy, diffuse glomerulosclerosis, nodular glomerulosclerosis, urinary infections, acute pyelonephritis, necrotizing papillitis, emphysematous pyelonephritis, glycogen nephrosis (armanni-ebstein lesion), retinopathy, nonproliferative retinopathy, capillary microaneurysms, retinal edema exudates, hemorrhages, proliferative retinopathy, proliferation of small vessels, hemorrhage fibrosis, retinal detachment, cataracts, transient refractive errors due to osmotic changes in lens, glaucoma due to proliferation of vessels in the iris, retinal infections, cerebrovascular atherosclerotic disease, neuropathy, skin infections, coronary atherosclerosis, myocardial infarction, peripheral atherosclerosis: limb ischemia, gangrene, increased fetal death rate, increased susceptibility to infection and delayed wound healing.

163. (New) The method of claim 160, wherein said polar extract is capable of lowering glucose levels in the blood.

164. (New) The method of claim 160, wherein said polar fraction extract has Rf values in a range of 0.0-0.45 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

165. (New) The method of claim 160, wherein said polar fraction extract has Rf values in a range of 0.0-0.32 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

166. (New) The method of claim 160, wherein said polar fraction extract has Rf values in a range of 0.17-0.41 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

167. (New) The method of claim 160, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using methanol and has a Rf value selected from the group consisting of 0.0, 0.31, 0.34, 0.36, 0.39 and 0.45 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

168. (New) The method of claim 160, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using water and has a Rf value of 0.0 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

169. (New) The method of claim 160, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted with methanol and has a Rf value selected from the group consisting of 0.0, 0.15, 0.30 and 0.32 when subjected to thin-layer

chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

170. (New) The method of claim 160, wherein said polar fraction extract of *Portulaca oleracea* L. is extracted with methanol:ethanol:water in proportions of 1:1:1 and has a Rf value selected from the group consisting of 0.17, 0.27, 0.30, 0.34, 0.39 and 0.41 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

171. (New) A method of treating a hyperglycemia-related disease in a subject, the method comprising administering to a subject in need thereof a therapeutic effective amount of a composition including a non-polar fraction extract of *Portulaca oleracea* L., thereby treating the hyperglycemia-related disease in the subject.

172. (New) The method of claim 171, wherein the hyperglycemia-related disease is selected from the group consisting of diabetes, Cushing's disease, Cushing's syndrome, eating disorders, impaired glucose tolerance, glomerular microangiopathy, diffuse glomerulosclerosis, nodular glomerulosclerosis, urinary infections, acute pyelonephritis, necrotizing papillitis, emphysematous pyelonephritis, glycogen nephrosis (armanni-ebstein lesion), retinopathy, nonproliferative retinopathy, capillary microaneurysms, retinal edema exudates, hemorrhages, proliferative retinopathy, proliferation of small vessels, hemorrhage fibrosis, retinal detachment, cataracts, transient refractive errors due to osmotic changes in lens, glaucoma due to proliferation of vessels in the iris, retinal infections, cerebrovascular atherosclerotic disease, neuropathy, skin infections, coronary atherosclerosis, myocardial infarction, peripheral atherosclerosis: limb ischemia, gangrene, increased fetal death rate, increased susceptibility to infection and delayed wound healing.

173. (New) The method of claim 171, wherein said non-polar fraction extract has Rf values in a range of 0.11-0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

174. (New) The method of claim 171, wherein said non-polar fraction extract has Rf values in a range of 0.11-0.88 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

175. (New) The method of claim 171, wherein said non-polar fraction extract has Rf values in a range of 0.17-0.91 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

176. (New) The method of claim 171, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using hexane and has a Rf value selected from the group consisting of 0.36, 0.45, 0.52, 0.71 and 0.88 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

177. (New) The method of claim 171, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted by Soxhlet extraction using ethyl acetate and has a Rf value selected from the group consisting of 0.11, 0.18, 0.31, 0.36, 0.45, 0.52 and 0.71 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

178. (New) The method of claim 171, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with hexane and has a Rf value selected from the group consisting of 0.3, 0.32, 0.41, 0.47 and 0.89 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

179. (New) The method of claim 171, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with ethyl acetate and has a Rf value selected from the group consisting of 0.15, 0.36, 0.47, 0.73 and 0.89 when subjected

to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

180. (New) The method of claim 171, wherein said non-polar fraction extract of *Portulaca oleracea* L. is extracted with hexane:DCM:ethyl-acetate in proportions of 1:1:1 and has a R<sub>f</sub> value selected from the group consisting of 0.17, 0.30, 0.36, 0.41, 0.68 and 0.91 when subjected to thin-layer chromatographic fractionation on Silica Gel 60 F254 on aluminum using a solvent of dichloromethane: hexane: methanol in proportions of 1:1:0.2.

181. (New) A method of identifying agents for modulating glucose levels in the blood, the method comprising:

- (a) fractionating a *Portulaca oleracea* L. extract to thereby obtain a plurality of fractions; and
- (b) identifying from said plurality of fractions at least one fraction capable of modulating glucose levels in the blood, thereby identifying the agents for modulating glucose levels.

182. (New) The method of claim 181, wherein said fractionating is effected by employing a solvent gradient of increasing polarity

183. (New) The method of claim 182, wherein step (b) is effected by testing an effect of said fraction on:

- (i) glucose adsorption through the intestines; and/or
- (ii) glucose transport into a cell.